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Gerrit Willem Hiddink

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte GERRIT WILLEM HIDDINK

Appeal 2009-002847
Application 10/751,376
Technology Center 2600

Decided: August 11, 2009

Before JOHN A. JEFFERY, CARLA M. KRIVAK,
and KARL D. EASTHOM, *Administrative Patent Judges*.

KRIVAK, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant appeals under 35 U.S.C. § 134(a) from a final rejection of claims 1-4, 6, 7, 11, 13-16, 18, and 22-24.¹ We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

¹ The Examiner rejected claims 5, 17, and 25 over Crawford under 35 U.S.C. § 103(a) in the Final Office Action mailed May 15, 2007. However, the Examiner withdrew this rejection (Ans. 2).

STATEMENT OF THE CASE

Appellant's claimed invention is a predictive method and apparatus for selecting an antenna in a multi-antenna wireless device (Spec. 2:19-20; Fig. 2). Signal quality associated with each antenna for previously received frames is evaluated based on a weighted schedule (Spec. 2:20-23).

Independent claim 1, reproduced below, is representative of the subject matter on appeal.

1. A wireless communication device, comprising:

a plurality of antennas; and

a predictive antenna selector that evaluates a signal quality of each of said plurality of antennas of at least a portion of one prior frame and selects an antenna to communicate one or more frames based on said signal quality evaluation, wherein said predictive antenna selector evaluates said signal quality of each of said plurality of antennas based on a weighted schedule.

REFERENCES

Crawford

US 2003/0002471 A1

Jan. 2, 2003

The Examiner rejected claims 1-4, 6, 7, 11, 13-16, 18, and 22-24 under 35 U.S.C. § 102(b) based upon the teachings of Crawford.

Appellant contends Crawford fails to teach that the signal quality of each of a plurality of antennas is evaluated based on a weighted schedule (App. Br. 4; Reply Br. 3, 4).

ISSUE

Did Appellant establish the Examiner erred in finding Crawford teaches that the signal quality of each of a plurality of antennas is evaluated based on a weighted schedule?

FINDINGS OF FACT

1. Appellant's claimed invention determines signal quality associated with previously received frames for each antenna in a multi-antenna wireless device (Spec. 2:19-22; Fig. 2). The signal quality for each antenna is compared to the signal quality of the other antennas based on a weighted schedule. This predicts the best antenna for receiving a frame (Spec. 2:22-23; 5:13-16; cls. 1, 13, and 23).

2. Crawford teaches a method and apparatus for determining signal quality associated with previously received frames for each antenna in a multi-antenna wireless device ([0051]; Fig. 1). The signal quality for each antenna pairing is compared to the signal quality of the other antenna pairings to predict the best antenna for receiving a frame ([0013], [0136]; Fig. 1). When five antennas are used, the signal quality for all ten possible antenna pairings is not evaluated ([0154], [0155]). Instead, the previously identified six best pairings are evaluated ([0154], [0155]). During the next opportunity for antenna evaluation, the two worst antenna pairings from the previous evaluation are replaced with two pairings not among the previous six best pairings, then those six pairings are evaluated against one another ([0154], [0155]). The "unending search" ([0154]) for better antenna pairings continues in this manner ([0163]).

PRINCIPLES OF LAW

“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros. v. Union Oil Co. of Calif., Inc.*, 814 F.2d 628, 631 (Fed. Cir. 1987).

The scope of the claims in a patent application is determined not solely on the basis of the claim language, but upon giving claims their broadest reasonable construction in light of the Specification as it would be interpreted by one of ordinary skill in the art. *In re Am. Acad. of Sci. Tech Center*, 367 F.3d 1359, 1364 (Fed. Cir. 2004).

ANALYSIS

The Examiner rejected claims 1-4, 6, 7, 11, 13-16, 18, and 22-24 under 35 U.S.C. § 102(b) based upon the teachings of Crawford. Appellant argues this rejection with respect to independent claims 1, 13, and 23 (App. Br. 3-4). Because Appellant grouped claims 1, 13, and 23 together, this rejection is addressed with respect to representative claim 1.²

Appellant’s only contention is that Crawford does not teach a “weighted schedule” (App. Br. 3, 4). Appellant asserts that “weight” is defined as a “factor assigned to a number in a computation, as in determining an average, to make the number’s effect on the computation reflect its importance” (App. Br. 3; Reply Br. 3). Applying this definition of “weight,” Appellant maintains Crawford fails to teach that the signal quality

² Appellant did not specifically address dependent claims 2-4, 6, 7, 11, 14-16, 18, 22, and 24, but stated that the dependent claims are believed allowable for the reasons presented with respect to claims 1, 13, and 23 (App. Br. 4, 5).

of each of a plurality of antennas is evaluated based on a weighted schedule (App. Br. 4; Reply Br. 3, 4).

The Examiner finds that “[t]he specification is totally silent about any factor . . . ‘assigned to a number in a computation’” and that “weight” is also defined as “to bias or slant toward a particular goal or direction, manipulate” (Ans. 5). The Examiner further finds that because the schedule for evaluating each antenna is not fixed and is biased or manipulated instead, Crawford teaches the signal quality of each of a plurality of antennas is evaluated based on a weighted scheduled as recited in the claims (Ans. 5)

In Crawford, when a certain antenna is determined to have sufficiently poor signal quality during a previous evaluation interval, that antenna will not be scheduled for evaluation in the next evaluation interval (FF 2). In this manner, Crawford biases or weights the evaluation of the antenna toward the best previously-identified antenna pairs and away from the worst previously-identified antenna pairs during each evaluation interval. Because “weight” or “weighted schedule” is not defined in Appellant’s Specification, it is given its broadest reasonable interpretation, i.e., “bias or slant toward a particular goal or direction, manipulate” (Ans. 5). *In re Am. Acad. of Sci. Tech Center*, 367 F.3d at 1364. In light of this interpretation, Crawford’s antenna evaluation bias at evaluation intervals corresponds to evaluating the “signal quality of each of said plurality of antennas based on a weighted schedule” as claimed by Appellant (FF 1). Thus, Appellant’s argument that Crawford does not teach evaluating signal quality of each of a plurality of antennas based on a “weighted schedule” is without merit.

Therefore, because Crawford teaches evaluating signal quality of an antenna based on a weighted schedule, Crawford anticipates claims 1-4, 6, 7, 11, 13-16, 18, and 22-24.

CONCLUSION

Appellant did not establish the Examiner erred in finding Crawford teaches that the signal quality of each of a plurality of antennas is evaluated based on a weighted schedule.

DECISION

The Examiner's decision rejecting claims 1-4, 6, 7, 11, 13-16, 18, and 22-24 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

KIS

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